

## REMARKS

Claims 1-2, 4, 7-8, 11-12, 14-15, 21, 25-26, 29-31, 40-42, 45, and 52-55 are pending at the time of the Office Action. Claims 3, 5-6, 9-10, 13, 16-20, 22-24, 27-28, 32-39, 43, 46-51, and 56-60 were withdrawn from consideration. In the Office Action mailed on April 19, 2007, the Examiner took the following action: (1) rejected claims 40, 41, 45, and 52-53 under 35 U.S.C. §103(a) as being unpatentable over Dearman (U.S. 4,726,575) in view of Haumann (U.S. 2,968,054); (2) rejected claims 1-2, 4, 12, 21, 25-26, 29-31, 42, and 54 under 35 U.S.C. §103(a) as being unpatentable over Dearman in view of Haumann, and in further view of Snyder (U.S. 2,324,803); and (3) rejected claims 7-8, 11, 14-15, and 55 under 35 U.S.C. §103(a) as being unpatentable over Dearman in view of Haumann, and in further view of Snyder and Smith (U.S. 5,280,892). Claims 1, 4, 21, 40-42 and 52 are amended. Claim 61 is added. Applicants respectfully request reconsideration of the application in view of the foregoing amendments and the following remarks.

### *I. Rejections under 35 U.S.C. §103(a)*

#### Claims 40-41 and 45

Claims 40-41 and 45 are rejected under 35 U.S.C. §103(a) as being unpatentable over Dearman in view of Haumann. Claims 41 and 45 depend from claim 40. Claim 40, as amended, recites:

40. A clamping system for manufacturing, the clamping system comprising:  
one or more force applying units, each force applying unit including a body and a force applying member

movably attached to the body arranged to apply a clamping force to a work piece, wherein the force applying members are configured to be laterally simultaneously motivated by an externally-powered force unit that drives the force applying member relative to the body;

one or more coupling units operatively coupled to the force applying units, the one or more coupling units interspersed with the one or more force applying units forming a chain of force applying units and coupling units;

wherein each coupling unit includes a single pivot ball, and a first arm and a second arm, each arm comprises a securing component configured to grip the single pivot ball.

Applicants respectfully traverse these rejections. First, Dearman does not teach, as recited in claim 40, “wherein each coupling unit includes *a single pivot ball, and a first arm and a second arm, each arm comprises a securing component configured to grip the single pivot ball.*” (emphasis added). Instead, Dearman discloses a “dual stranded roller chain 18 having parallel rows of links 19 spaced by rollers 20 mounted on pins 21.” (Figure 1, Column 3, Lines 26-28). Second, applicants respectfully submit that the deficiencies of Dearman are not remedied by Haumann. Haumann discloses pressure cylinder chambers 12, 13, and 14 and conduits 7 and 8 that are adapted to be supplied with pressure medium from a suitable pressure source. (Column 4, Lines 5-9).

Accordingly, the cited references to Dearman and Haumann, whether individually or in combination, do not teach, disclose or fairly suggest the system recited in claim 40. Furthermore, since claims 41 and 45 depend from claim 40, they are at least allowable for the same reason that makes claim 40 allowable over the cited references.

### Claims 52-53

Claims 52-53 are rejected under 35 U.S.C. §103(a) as being unpatentable over Dearman in view of Haumann. Claim 53 depends from claim 52. Claim 52, as amended, recites:

52. A clamping system for clamping a work piece during manufacturing, the system comprising:  
a plurality of force applying means, each force applying means arranged to apply a clamping force to the work piece, wherein the force applying means are configured to be laterally simultaneously motivated by an externally-powered;  
a plurality of pivoting means arranged in a chain with the plurality of force applying means, the pivoting means arranged to pivot to conform the chain to a surface of the work piece,  
wherein each pivoting means include a rotational means and a plurality of gripping means, each gripping means is configured to grasp the rotational means, the rotational means configured to enable the plurality of gripping means to rotate with respect to each other on a plurality of axes.

Applicants respectfully traverse these rejections. First, Dearman does not teach, as recited in claim 52, “wherein *each pivoting means include a rotational means and a plurality of gripping means, each gripping means is configured to grasp the rotational means*, the rotational means configured to enable the plurality of gripping means *to rotate with respect to each other on a plurality of axes.*” (emphasis added). Instead, Dearman discloses a “dual stranded roller chain 18 having parallel rows of links 19 spaced by rollers 20 mounted on pins 21.” (Figure 1, Column 3, Lines 26-28). Moreover, the rollers 20 are not capable of rotating with respect to each other on a plurality of axis. (Figure 1).

Second, applicants respectfully submit that the deficiencies of Dearman are not remedied by Haumann. Haumann discloses pressure cylinder chambers 12, 13, and 14 and conduits 7 and 8 that are adapted to be supplied with pressure medium from a suitable pressure source. (Column 4, Lines 5-9).

Accordingly, the cited references to Dearman and Haumann, whether individually or in combination, do not teach, disclose or fairly suggest the system recited in claim 53. Furthermore, since claim 53 depends from claim 52, it is at least allowable for the same reason that makes claim 52 allowable over the cited references.

Claims 1-2, 4, and 12

Claims 1-2, 4, and 12 are rejected under 35 U.S.C. §103(a) as being unpatentable over Dearman in view of Haumann, and further in view of Snyder. Claims 2, 4, and 12 depend from claim 1. Claim 1, as amended, recites:

1. A clamping system for securing a first surface of a work piece against a frame, the clamping system comprising:
  - a plurality of end supports, each of the end supports being configured to be coupled to an anchor;
  - one or more force applying units, each of the force applying units including a body and a plunger movably coupled to the body and adapted to apply a clamping force to a second surface of the work piece to secure the first surface of the work piece against the frame; and
  - one or more coupling units linked with the one or more force applying units forming a chain of interspersing force applying units and coupling units between the plurality of end supports to support the force applying units against a second surface of the work piece opposite the first surface, each coupling unit configured to pivot to conform the chain to a surface

of the work piece when unlocked, and adapted to be locked when at least one of the force applying units applies the clamping force to the work piece wherein the coupling unit includes a single pivot ball, and a first arm and a second arm, each arm comprises a securing component configured to lockably grip the single pivot ball.

Applicants respectfully traverse these rejections. First, applicants respectfully incorporate the argument present above in response to the rejection of claim 40 under 35 U.S.C. §103(a) by analogy. Accordingly, applicants assert that Dearman and Haumann do not disclose, teach, or fairly suggest, whether individually or in combination, “wherein the coupling unit includes *a single pivot ball, and a first arm and a second arm, each arm comprises a securing component configured to lockably grip the single pivot ball,*” as recited in claim 1. (emphasis added).

Second, the deficiencies of Dearman are also not remedied by Snyder. Instead, Snyder discloses balls 20 that are connected by a shank 19. (Column 2, Lines 25-26). Moreover, as shown in Figures 2-4 and 7-8, each of the balls 20 is enclosed by only a *single pair* of jaws 21. (Figures 2-4 and 7-8; Column 2, Lines 26-29).

Accordingly, applicants respectfully assert that the cited references (Dearman, Haumann, and Snyder), whether individually or in combination, do not disclose, teach or fairly suggest every aspect of claim 1. Furthermore, since claims 2, 4, and 12 depend from claim 1, they are at least allowable for the same reason that makes claim 1 allowable over the cited references.

Claims 21, 25-26, and 29-31

Claims 21, 25-26, and 29-31 are rejected under 35 U.S.C. §103(a) as being unpatentable over Dearman in view of Haumann, and further in view of Snyder.

Claims 25-26 and 29-31 depend from claim 21. Claim 21, as amended, recites:

21. A clamping system for securing a first surface of a work piece against a frame during manufacturing, the clamping system comprising:

- a plurality of end supports, each of the end supports being configured to support the clamping system against the work piece;

- one or more externally powered force applying units, each powered force applying unit including a body and a plunger movably attached to the body arranged to apply a clamping force to a work piece; and

- one or more lockable elbow units, attached to and interspersed with the one or more force applying units forming a chain of force applying units and elbows between the plurality of end supports, each lockable elbow unit configured to pivot to conform the chain to a surface of the work piece when unlocked, and arranged to lock when the force applying unit applies the clamping force to the work piece,

- wherein each lockable elbow unit includes a single pivot ball, and a first arm and a second arm, each arm comprises a pair of pincers configured to lockably grip the single pivot ball.

Applicants respectfully traverse these rejections. Specifically, applicants respectfully incorporate the argument present above in response to the rejection of claim 1 under 35 U.S.C. §103(a) by analogy. Accordingly, applicants assert that the cited references (Dearman, Haumann and Snyder), whether individually or in combination, do not disclose, teach, or fairly suggest, “wherein each lockable

elbow unit includes *a single pivot ball, and a first arm and a second arm, each arm comprises a pair of pincers configured to lockably grip the single pivot ball,*” as recited in claim 21. (emphasis added).

Furthermore, since claims 25-26 and 29-31 depend from claim 21, they are at least allowable for the same reason that makes claim 21 allowable over the cited references.

#### Claim 42

Claim 42 is rejected under 35 U.S.C. §103(a) as being unpatentable over Dearman in view of Haumann, and further in view of Snyder. Claim 42 depends from claim 40. Claim 40, as amended, recites:

40. A clamping system for manufacturing, the clamping system comprising:  
one or more force applying units, each force applying unit including a body and a force applying member movably attached to the body arranged to apply a clamping force to a work piece, wherein the force applying members are configured to be laterally simultaneously motivated by an externally-powered force unit that drives the force applying member relative to the body;  
one or more coupling units operatively coupled to the force applying units, the one or more coupling units interspersed with the one or more force applying units forming a chain of force applying units and coupling units;  
wherein each coupling unit includes a single pivot ball, and a first arm and a second arm, each arm comprises a securing component configured to grip the single pivot ball.

Applicants respectfully traverse this rejection. Specifically, applicants respectfully incorporate the argument present above in response to the rejection of

claim 1 under 35 U.S.C. §103(a) by analogy. Accordingly, applicants assert that the cited references (Dearman, Haumann and Snyder), whether individually or in combination, do not disclose, teach, or fairly suggest, “wherein each coupling unit includes *a single pivot ball, and a first arm and a second arm, each arm comprises a securing component configured to grip the single pivot ball,*” as recited in claim 40. (emphasis added).

Furthermore, since claim 42 depend from claim 40, it is at least allowable for the same reason that makes claim 40 allowable over the cited references.

#### Claim 54

Claim 54 is rejected under 35 U.S.C. §103(a) as being unpatentable over Dearman in view of Haumann, and further in view of Snyder. Claim 54 depends from claim 52. Claim 52, as amended, recites:

52. A clamping system for clamping a work piece during manufacturing, the system comprising:  
a plurality of force applying means, each force applying means arranged to apply a clamping force to the work piece, wherein the force applying means are configured to be laterally simultaneously motivated by an externally-powered;  
a plurality of pivoting means arranged in a chain with the plurality of force applying means, the pivoting means arranged to pivot to conform the chain to a surface of the work piece,  
wherein each pivoting means include a rotational means and a plurality of gripping means, each gripping means is configured to grasp the rotational means, the rotational means configured to enable the plurality of gripping means to rotate with respect to each other on a plurality of axes.



Applicants respectfully traverse these rejections. First, applicants respectfully incorporate the argument present above in response to the rejection of claim 52 under 35 U.S.C. §103(a) by analogy. Accordingly, applicants assert that Dearman and Haumann do not disclose, teach, or fairly suggest, whether individually or in combination, “wherein each pivoting means include *a rotational means and a plurality of gripping means*, each gripping means is configured to grasp the rotational means, the rotational means configured to enable the plurality of gripping means *to rotate with respect to each other on a plurality of axes*,” as recited in claim 52. (emphasis added).

Second, the deficiencies of Dearman are also not remedied by Snyder. Instead, Snyder discloses balls 20 that are connected by a shank 19. (Column 2, Lines 25-26). Moreover, as shown in Figures 2-4 and 7-8, each of the balls 20 is enclosed by only a *single pair* of jaws 21. (Figures 2-4 and 7-8; Column 2, Lines 26-29).

Accordingly, applicants respectfully assert that the cited references (Dearman, Haumann, and Snyder), whether individually or in combination, do not disclose, teach or fairly suggest every aspect of claim 52. Furthermore, since claim 54 depends from claim 52, it is at least allowable for the same reason that makes claim 52 allowable over the cited references.

#### Claims 7-8, 11, and 14-15

Claims 7-8, 11, and 14-15 are rejected under 35 U.S.C. §103(a) as being unpatentable over Dearman in view of Haumann, and further in view of Snyder and Smith. Claims 7-8, 11, and 14-15 depend from claim 1. Claim 1, as amended, recites:

1. A clamping system for securing a first surface of a work piece against a frame, the clamping system comprising:

a plurality of end supports, each of the end supports being configured to be coupled to an anchor;

one or more force applying units, each of the force applying units including a body and a plunger movably coupled to the body and adapted to apply a clamping force to a second surface of the work piece to secure the first surface of the work piece against the frame; and

one or more coupling units linked with the one or more force applying units forming a chain of interspersing force applying units and coupling units between the plurality of end supports to support the force applying units against a second surface of the work piece opposite the first surface, each coupling unit configured to pivot to conform the chain to a surface of the work piece when unlocked, and adapted to be locked when at least one of the force applying units applies the clamping force to the work piece

wherein the coupling unit includes a single pivot ball, and a first arm and a second arm, each arm comprises a securing component configured to lockably grip the single pivot ball.

Applicants respectfully traverse these rejections. First, applicants respectfully incorporate the argument present above in response to the rejection of claim 1 under 35 U.S.C. §103(a). Accordingly, applicants assert that the cited references (Dearman, Haumann and Snyder) do not disclose, teach, or fairly suggest, “wherein the coupling unit includes *a single pivot ball, and a first arm and a second arm, each arm comprises a securing component configured to lockably grip the single pivot ball,*” as recited in claim 1. (emphasis added).

Second, the deficiencies of Dearman are also not remedied by Smith. Instead, as noted by the Examiner, Smith teaches that a lockable pivot may be actuated externally by pneumatic means using a solenoid. (8:15-16).

Accordingly, applicants respectfully assert that the cited references (Dearman, Haumann, Snyder, and Smith), whether individually or in combination, do not disclose, teach or fairly suggest every aspect of claim 1. Furthermore, since claims 7-8, 11, and 14-15 depend from claim 1, they are at least allowable for the same reason that makes claim 1 allowable over the cited references.

#### Claim 55

Claim 55 is rejected under 35 U.S.C. §103(a) as being unpatentable over Dearman in view of Haumann, and further in view of Snyder and Smith. Claim 55 depends from claim 52. Claim 52, as amended, recites:

52. A clamping system for clamping a work piece during manufacturing, the system comprising:
- a plurality of force applying means, each force applying means arranged to apply a clamping force to the work piece, wherein the force applying means are configured to be laterally simultaneously motivated by an externally-powered;
  - a plurality of pivoting means arranged in a chain with the plurality of force applying means, the pivoting means arranged to pivot to conform the chain to a surface of the work piece,
- wherein each pivoting means include a rotational means and a plurality of gripping means, each gripping means is configured to grasp the rotational means, the rotational means configured to enable the plurality of gripping means to rotate with respect to each other on a plurality of axes.

Applicants respectfully traverse this rejection. Specifically, applicants respectfully incorporate the argument present above in response to the rejection of claim 54 under 35 U.S.C. §103(a) by analogy. Accordingly, applicants assert that the cited references (Dearman, Haumann, Snyder, and Smith), whether individually or in combination, do not disclose, teach, for fairly suggest, “wherein

each pivoting means include *a rotational means and a plurality of gripping means*, each gripping means is configured to grasp the rotational means, the rotational means configured to enable the plurality of gripping means *to rotate with respect to each other on a plurality of axes*,” as recited in claim 52. (emphasis added).

Furthermore, since claim 55 depends from claim 52, it is at least allowable for the same reason that makes claim 52 allowable over the cited references.

## *II. New Claim*

Claim 61 is newly added. Claim 61 depends from and applies additional limitations to claim 40. Accordingly, claim 61 is allowable at least due to its dependency, as well for additional limitations recited.

## CONCLUSION

Applicants respectfully submit that pending claims 1-2, 4, 7-8, 11-12, 14-15, 21, 25-26, 29-31, 40-42, 45, 52-55, and 61 are now in condition for allowance. If there are any remaining matters that may be handled by telephone conference, the Examiner is kindly invited to contact the undersigned attorney at the telephone number listed below.

Respectfully Submitted,

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